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Figure 1

Group Fixed-point Multiply

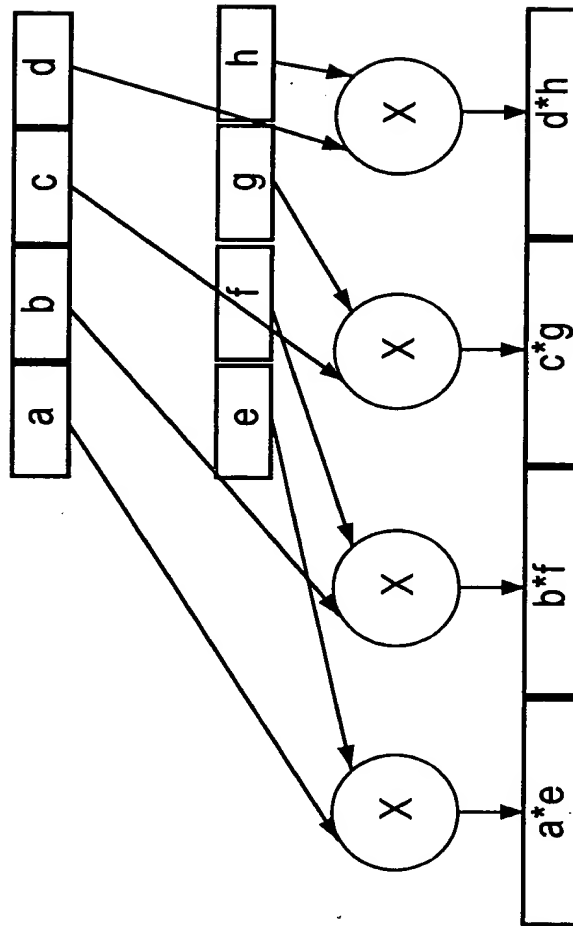


Figure 2

Group Fixed-point Multiply and Add

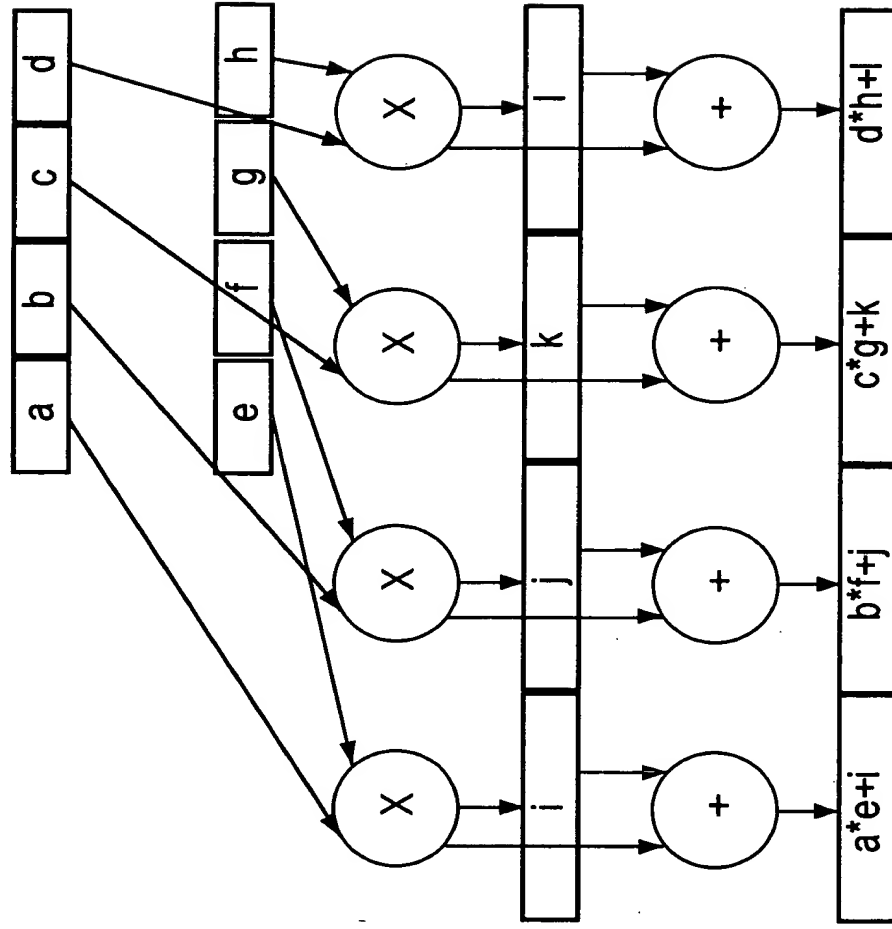


Figure 3

Group Floating-point Multiply

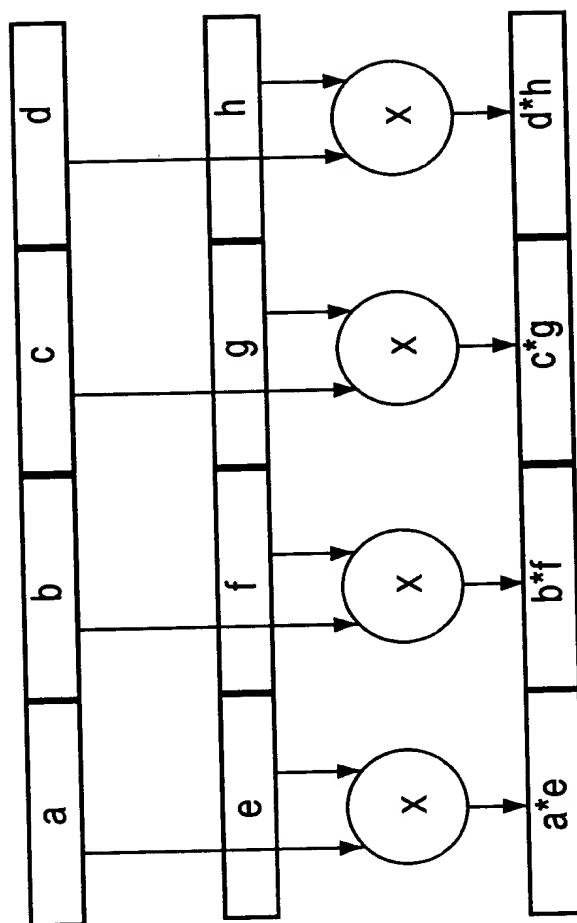


Figure 4

Group Floating-point Multiply and Add

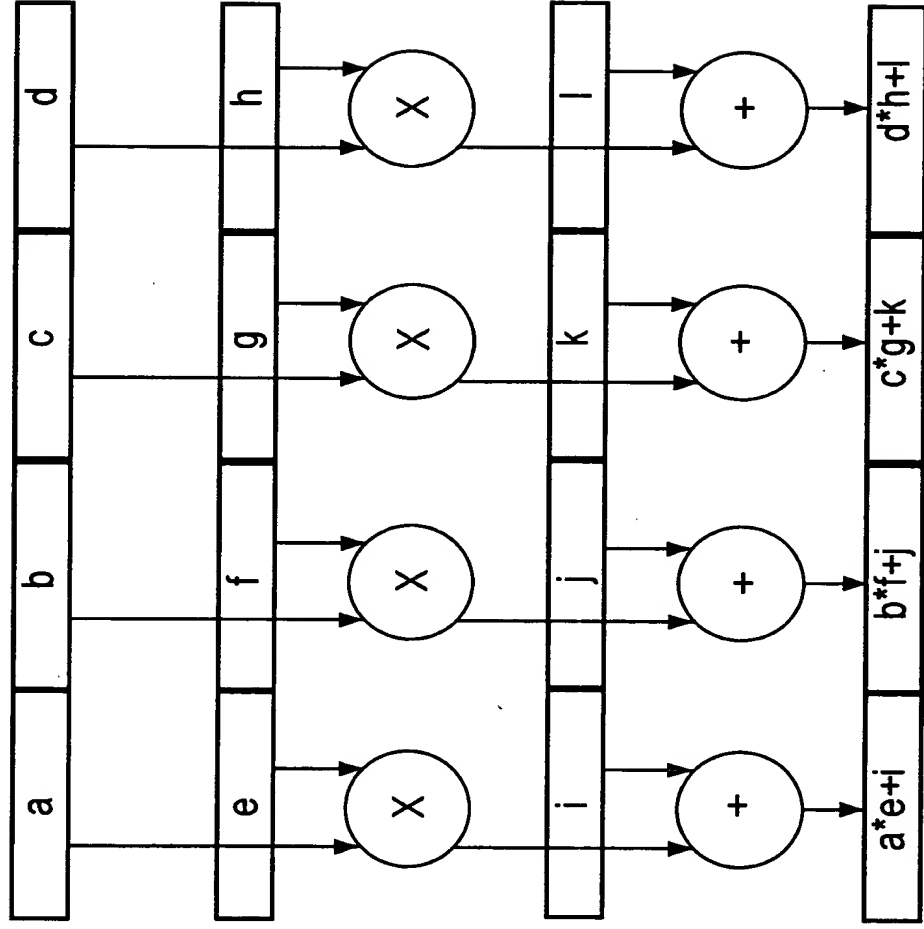


Figure 5A

### Group Floating-point Multiply and Sum

- Group Multiply and Sum: 64/128 bits := 128\*128 bits
- symbol sizes of 1, 2, 4, 8, 16, 32, 64 bits

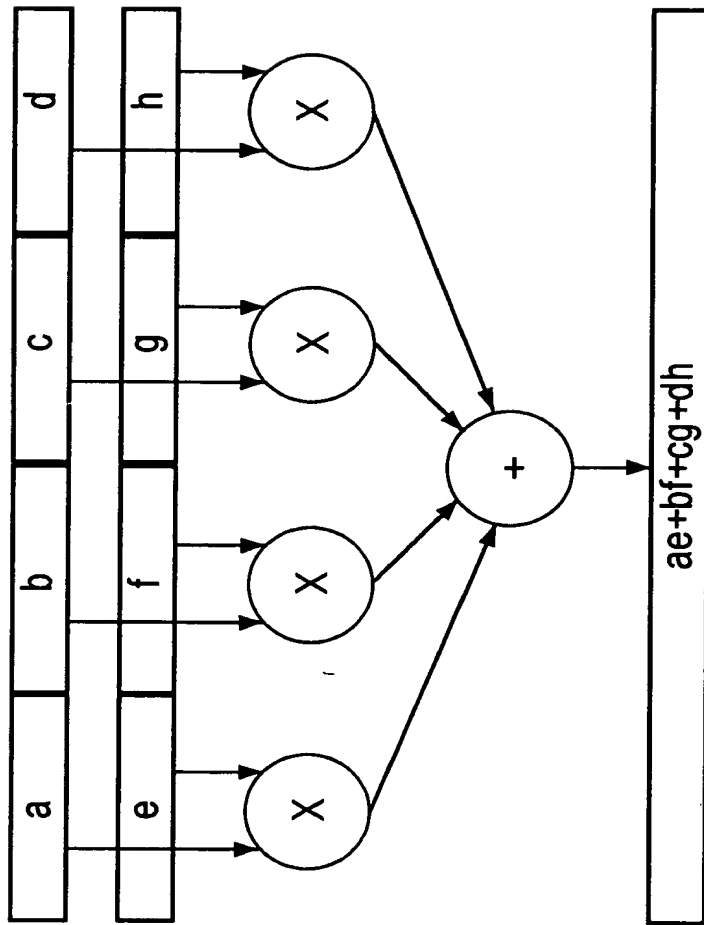


Figure 5B

# Group Floating-point Multiply and Sum

- Group Multiply and Sum: 64/128 bits := 128\*128 bits
- symbol sizes of 1, 2, 4, 8, 16, 32, 64 bits

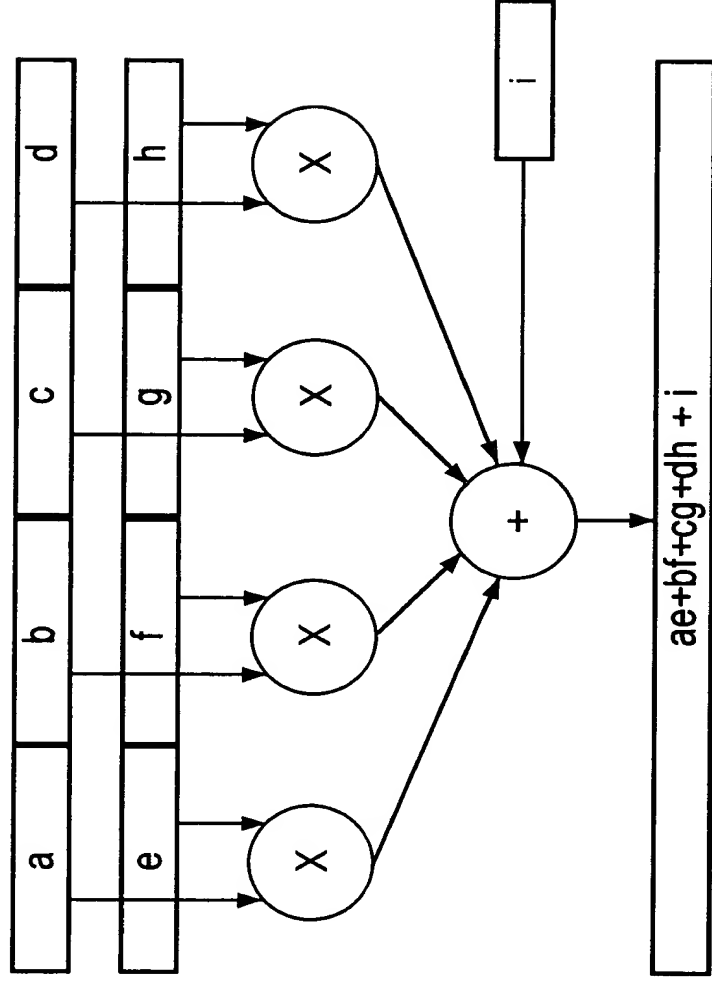


Figure 6

### Group Floating-point Multiply and Sum

- Group Multiply and Sum:  $64/128 \text{ bits} := 128 * 128 \text{ bits}$
- symbol sizes of 16, 32, 64 bits

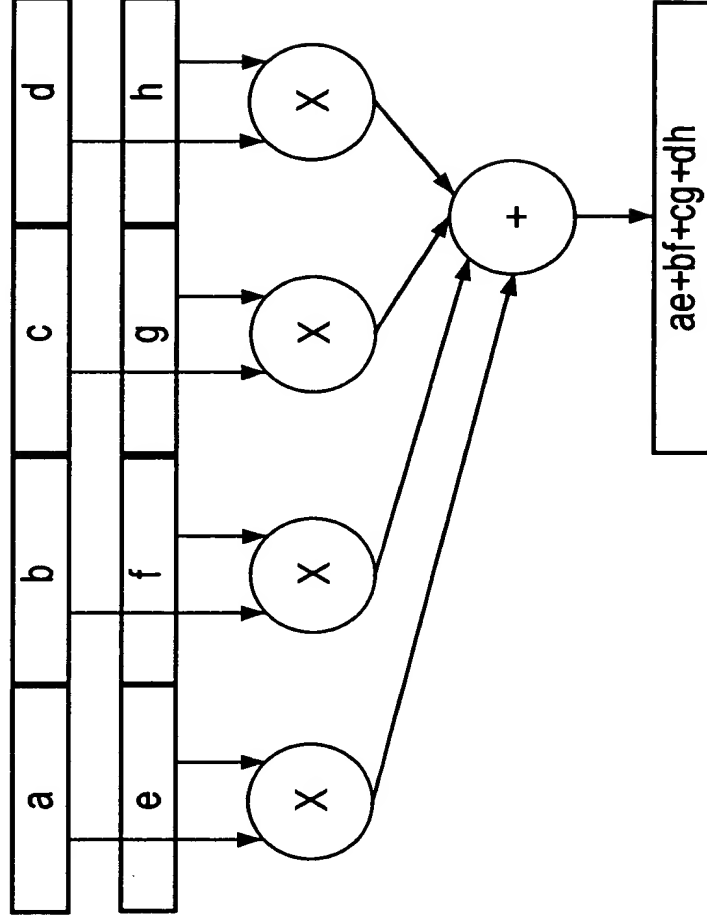
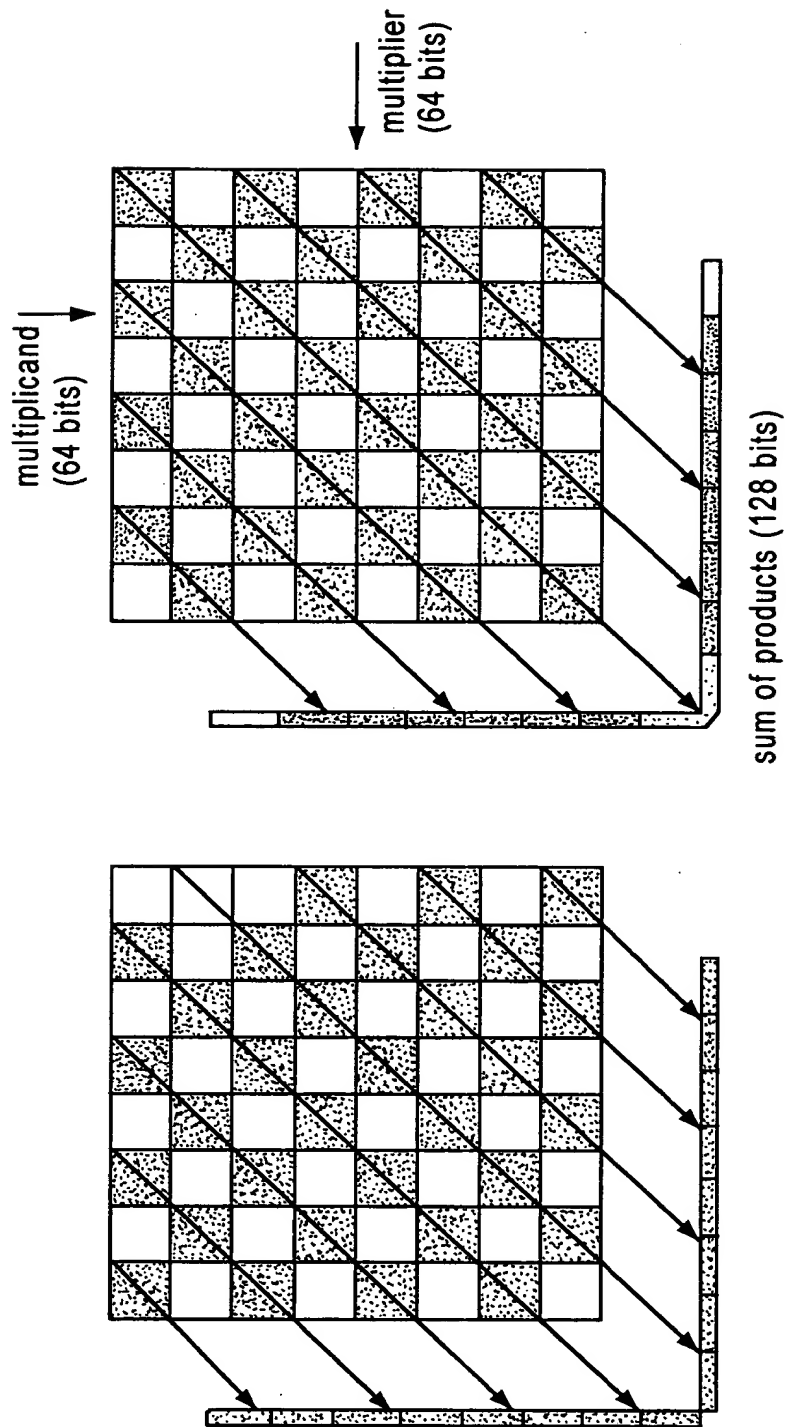


Figure 7

## Group Convolve

- Group Convolve: 128 bits :=  $64 * 64$  bits
- symbol sizes of 1, 2, 4, 8, 16, 32 bits

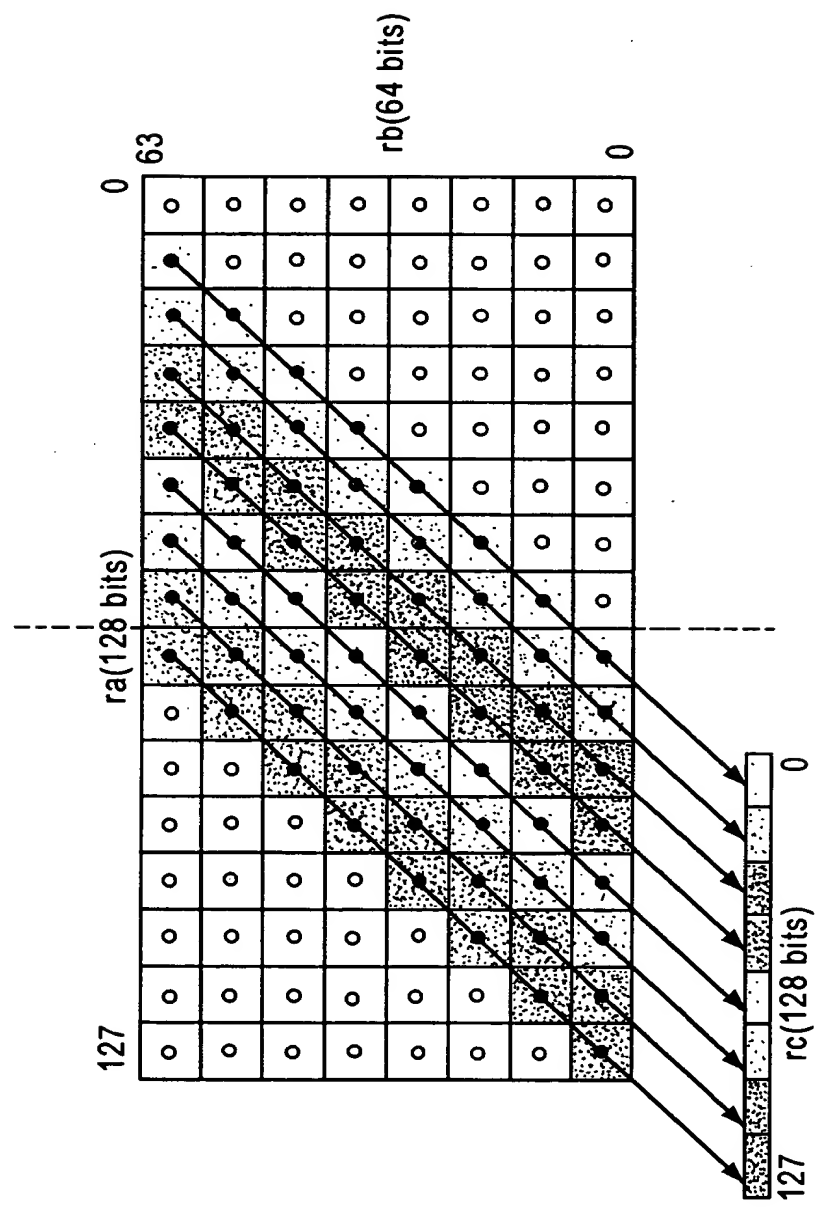




# Group Fixed-point Convolve

- Group Convolve: 128 bits := 128 \* 64 bits
- sizes of 1, 2, 4, 8, 16, 32 bits
- signed and unsigned

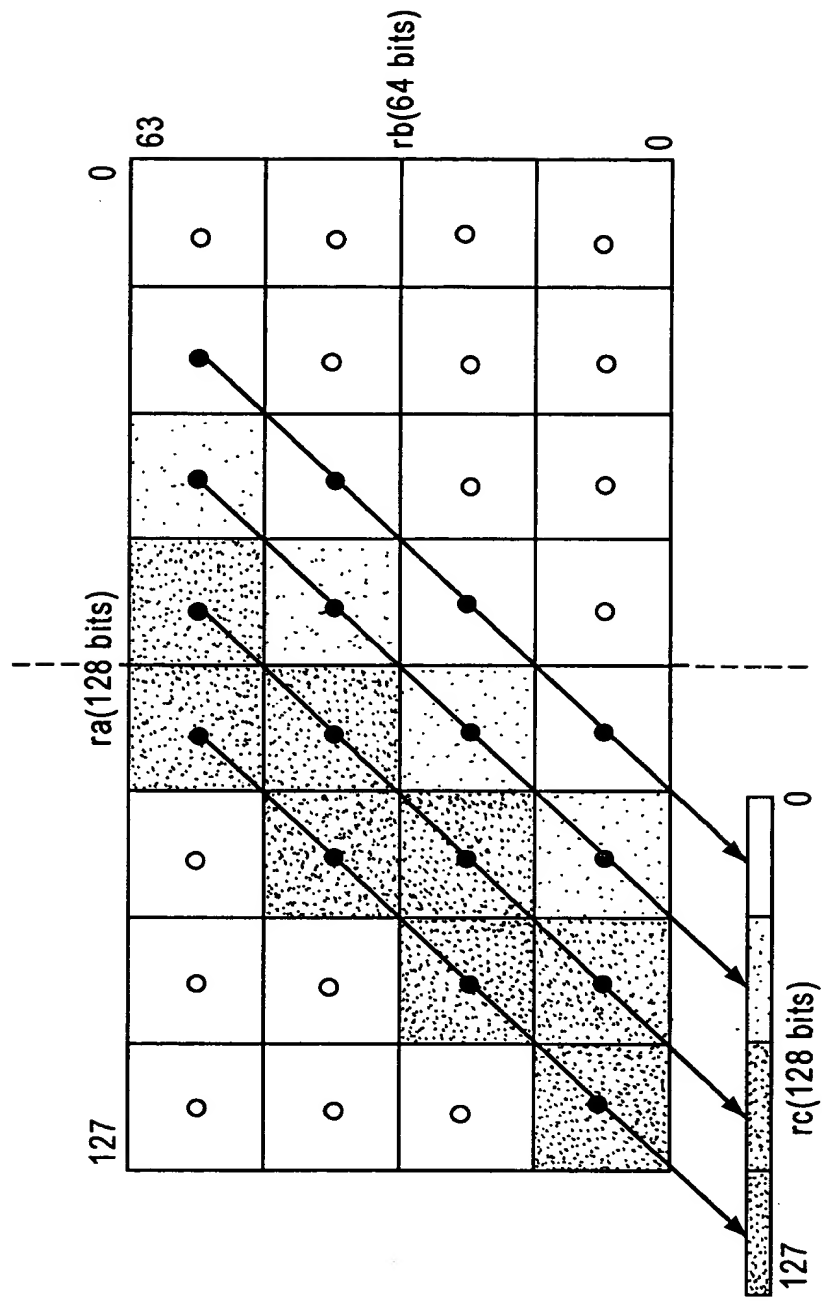
Figure 8



# Group Fixed-point Convolve

Figure 9

- Group Convolve: 128 bits := 128 \* 64 bits
- symbol size of 16 bits shown



# Group Floating-point Convolve

Figure 10

- Group Convolve: 64 bits := 128 \* 64 bits
- sizes of 16, 32 bits

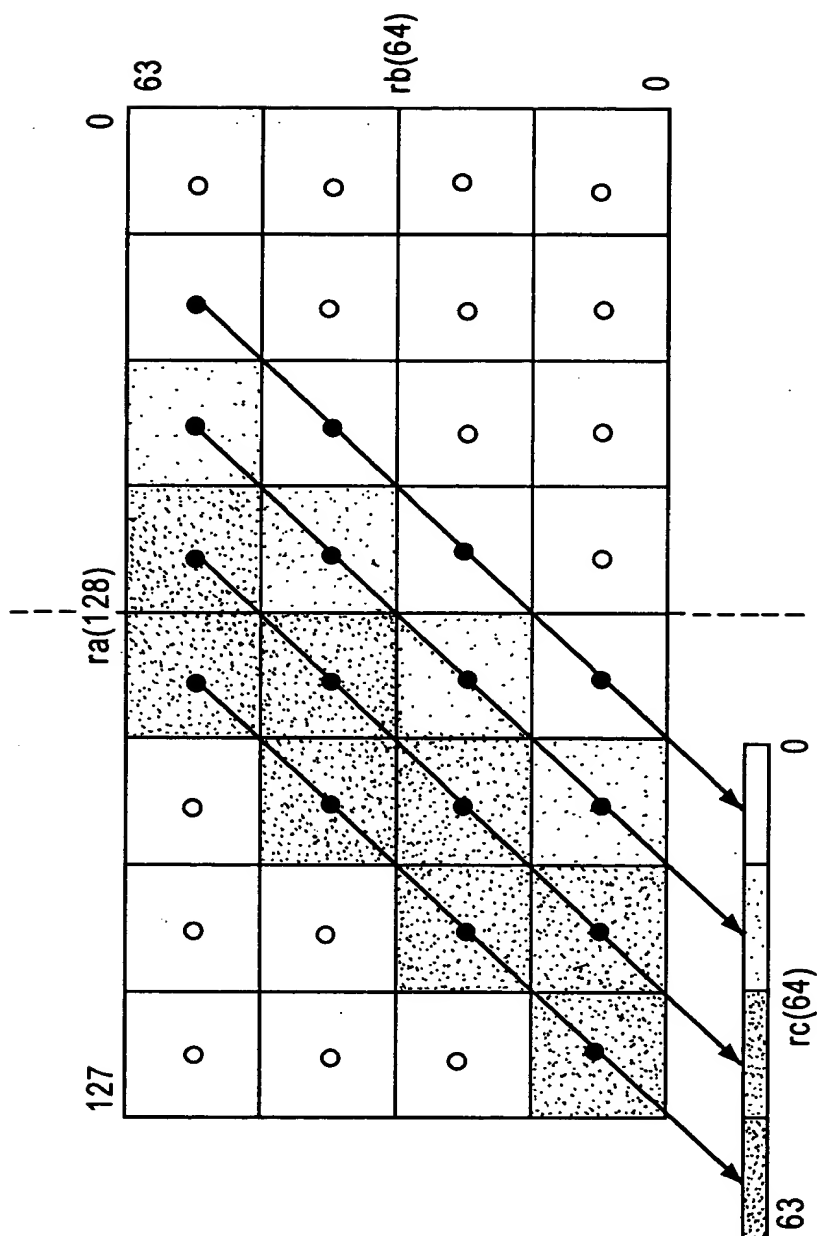


Figure 11

Group Integer Multiply

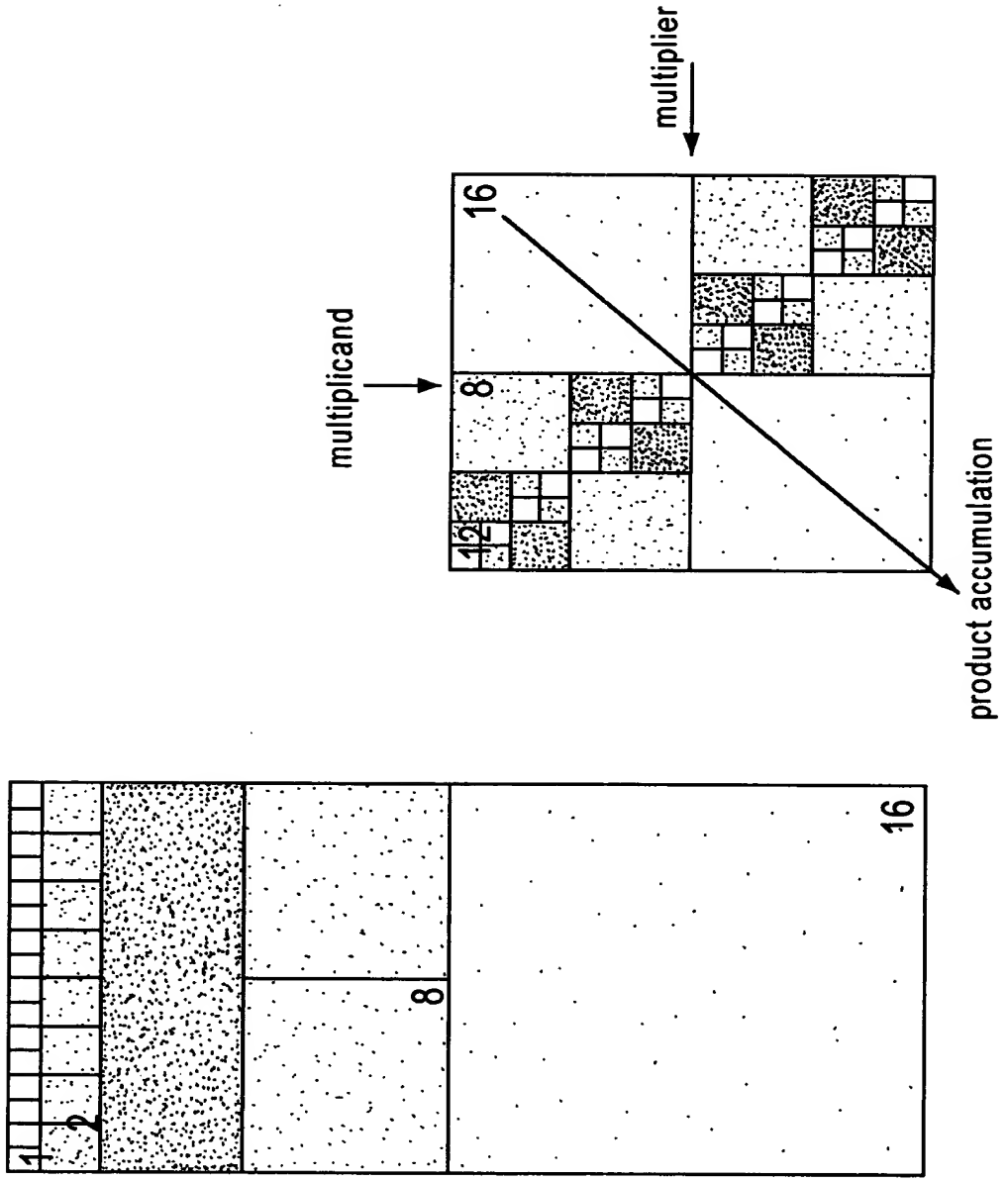




Figure 12

# Group Multiply-and-sum

